Information on Q-Fever

What is Q-Fever?

Q fever is a zoonotic disease caused by Coxiella burnetii, a species of bacteria that is distributed globally. In 1999, Q fever became a notifiable disease in the United States. Cattle, sheep, and goats are the primary reservoirs of C. burnetii. Infection has been noted in a wide variety of other animals, including other species of livestock and in domesticated pets. C. burnetii are excreted in milk, urine, and feces of infected animals. During birthing the organisms are shed in high numbers within the amniotic fluids and the placenta. **The organisms are resistant to heat, drying, and many common disinfectants.** Infection of humans usually occurs by inhalation of these organisms from air that contains airborne barnyard dust contaminated by dried placental material, birth fluids, and excreta of infected herd animals.

What are the signs and symptoms?

Only about one-half of all people infected with C. burnetii show signs of clinical illness. Most acute cases (1%-2%) of Q fever begin with sudden onset of one or more of the following: high fevers (up to 104-105° F), severe headache, general malaise, myalgia, confusion, sore throat, chills, sweats, non-productive cough, nausea, vomiting, diarrhea, abdominal pain, and chest pain. Fever usually lasts for 1 to 2 weeks. Weight loss can occur and persist for some time. Thirty to fifty percent of patients with a symptomatic infection will develop pneumonia. Additionally, some will develop hepatitis. In general, most patients will recover to good health within several months without any treatment. Chronic Q fever, characterized by infection that persists for more than 6 months is uncommon but is a much more serious disease. Patients who have had acute Q fever may develop the chronic form as soon as 1 year or as long as 20 years after initial infection. As many as 65% of persons with chronic Q fever may die of the disease. Those who recover fully from infection may possess lifelong immunity against re-infection.

How is Q-Fever diagnosed?

Because the signs and symptoms of Q fever are not specific to this disease, it is difficult to make an accurate diagnosis without appropriate laboratory testing. Confirming a diagnosis of Q fever requires serologic testing to detect the presence of antibodies to Coxiella burnetii antigens.

How is Q-Fever treated?

Doxycycline is the treatment of choice for acute Q fever. Antibiotic treatment is most effective when initiated within the first 3 days of illness. A dose of 100 mg of doxycycline taken orally twice daily for 15-21 days is a frequently prescribed therapy. Therapy should be started again if the disease relapses. Chronic Q fever endocarditis is much more difficult to treat effectively and often requires the use of multiple drugs. Two different treatment protocols have been evaluated: 1) doxycycline in combination with quinolones for at least 4 years and 2) doxycycline in combination with hydroxychloroquine for 1.5 to 3 years. The second therapy leads to fewer relapses, but requires routine eye exams to detect accumulation of chloroquine. Surgery to remove damaged valves may be required for some cases of C. burnetii endocarditis.

How to prevent Q-Fever?
In the United States, Q fever outbreaks have resulted mainly from occupational exposure involving veterinarians, meat processing plant workers, sheep and dairy workers, livestock farmers, and researchers at facilities housing sheep. Prevention and control efforts should be directed primarily toward these groups and environments. The following measures should be used in the prevention and control of Q fever:

- Educate the public on sources of infection.
- Appropriately dispose of placenta, birth products, fetal membranes, and aborted fetuses at facilities housing sheep and goats.
- Restrict access to barns and laboratories used in housing potentially infected animals.
- Use only pasteurized milk and milk products.
- Use appropriate procedures for bagging, autoclaving, and washing of laboratory clothing.
- Quarantine imported animals.
- Ensure that holding facilities for sheep should be located away from populated areas.

Is there a vaccine for Q-Fever?
A vaccine for Q fever has been developed and has successfully protected humans in occupational settings in Australia. However, this vaccine is not commercially available in the United States.

Significance for Bioterrorism
Coxiella burnetii is a highly infectious agent that is rather resistant to heat and drying. It can become airborne and inhaled by humans. A single C. burnetii organism may cause disease in a susceptible person. This agent could be developed for use in biological warfare and is considered a potential terrorist threat.

Source: Center's for Disease Prevention and Control, June 21, 2006

If you have additional questions, please call your doctor or local health department.

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